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     (FILE 'HOME' ENTERED AT 16:09:18 ON 08 AUG 2004)

     FILE 'REGISTRY' ENTERED AT 16:09:28 ON 08 AUG 2004
                E LIMN204/MF
L1            1 S E3

     FILE 'CAPLUS' ENTERED AT 16:10:15 ON 08 AUG 2004
L2          170 S L1 AND PREPARATION
L3            0 S L2 AND OXYGEN AND INERT
L4           27 S L2 AND (AIR OR OXYGEN)
L5            5 S L4 AND (ARGON OR NITROGEN)

     FILE 'REGISTRY' ENTERED AT 16:49:51 ON 08 AUG 2004
                E LI203/MF
L6            1 S E3

     FILE 'CAPLUS' ENTERED AT 16:51:02 ON 08 AUG 2004
L7           27 S L6
L8            7 S L7 AND (MANGANESE OR MN)
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ACCESSION NUMBER: 2003:117764 CAPLUS
DOCUMENT NUMBER: 138:157658
TITLE: Alumina-based glass-ceramics with high hardness for use as abrasives
INVENTOR(S): Rosenflanz, Anatoly Z.
PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA
SOURCE: PCT Int. Appl., 112 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 18
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2003011784 | A2 | 20030213 | WO 2002-US24657 | 20020802 |
| WO 2003011784 | C1 | 20030320 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1432659 | A1 | 20040630 | EP 2002-750413 | 20020802 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK | | | | |
| EP 1432660 | A1 | 20040630 | EP 2002-807369 | 20020802 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK | | | | |
| BR 2002011558 | A | 20040713 | BR 2002-11558 | 20020802 |

| PRIORITY APPLN. INFO.: | | |
|---|---|---|
| US 2001-922526 | A | 20010802 |
| US 2001-922527 | A | 20010802 |
| US 2001-922528 | A | 20010802 |
| US 2001-922530 | A | 20010802 |
| WO 2002-US24657 | W | 20020802 |
| WO 2002-US24658 | W | 20020802 |

AB Glass-ceramics for use as abrasive particles with high hardness contain alumina and other oxides with less than 10 weight% in $As_2O_3$, $B_2O_3$, $GeO_2$, $P_2O_5$, $SiO_2$, $TeO_2$, and $V_2O_5$ combined and are formed by heat-treatment of the glass compns. into glass-ceramics. The glass-ceramics also contain other components than alumina (such as $La_2O_3$, $ZrO_2$, Al, $Y_2O_3$, $Gd_2O_3$, Mg, MgO, $TiO_2$, $CaF_2$, $Nb_2O_5$, $Ta_2O_5$, SrO, $Mn_2O_3$, $Cr_2O_3$ and/or $CeO_2$) and may be crushed to form the abrasive particles. The abrasive particles can be incorporated into a variety of abrasive articles such as bonded abrasives.

coated abrasives, nonwoven abrasives and abrasive brushes.

IT Brushes
(abrasives; aluminate glass ceramic hardness abrasive steel substrate)

IT Abrasion
Glass ceramics
Glass transition temperature
Grain size
Hardness (mechanical)
Heat treatment
(aluminate glass ceramic hardness abrasive steel substrate)

IT Size reduction
(crushing, of glass-ceramics; aluminate glass ceramic hardness abrasive steel substrate)

IT Abrasives
(particles; aluminate glass ceramic hardness abrasive steel substrate)

IT Galvanized steel
RL: NUU (Other use, unclassified); USES (Uses)
(substrates; aluminate glass ceramic hardness abrasive steel substrate)

IT 12003-65-5, Aluminum lanthanum oxide (AlLaO3) 12005-21-9, Aluminum yttrium oxide (Al5Y3O12) 12043-90-2, Aluminum lanthanum oxide (Al11LaO18) 116590-85-3, Yttrium zirconium oxide (Y0.15Zr0.85O1.93) 140418-71-9, Cerium zirconium oxide (Ce0.6Zr0.4O2)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(crystallized phase; aluminate glass ceramic hardness abrasive steel substrate)

IT 144-55-8, Sodium carbonate (NaHCO3), processes 1302-74-5, Corundum, processes 1303-86-2, Boron oxide (B2O3), processes 1305-78-8, Calcium oxide (CaO), processes 1306-38-3, Ceria, processes 1308-38-9, Chromium oxide (Cr2O3), processes 1308-87-8, Dysprosium oxide (Dy2O3) 1308-96-9, Europium oxide (Eu2O3) 1309-37-1, Ferric oxide, processes 1309-48-4, Magnesium oxide (MgO), processes 1310-53-8, Germanium oxide (GeO2), processes 1312-81-8, Lanthanum oxide (La2O3) 1313-96-8, Niobium oxide (Nb2O5) 1313-97-9, Neodymium oxide (Nd2O3) 1314-11-0, Strontium oxide (SrO), processes 1314-23-4, Zirconium oxide (ZrO2), processes 1314-36-9, Yttrium oxide (Y2O3), processes 1314-56-3, Phosphorus oxide (P2O5), processes 1314-61-0, Tantalum oxide (Ta2O5) 1314-62-1, Vanadium oxide (V2O5), processes 1317-34-6, **Manganese** oxide (Mn2O3) 1327-53-3, Arsenic oxide (As2O3) 1344-28-1, Aluminum oxide (Al2O3), processes 7429-90-5, Aluminum, processes 7439-95-4, Magnesium, processes 7446-07-3, Tellurium oxide (TeO2) 7631-86-9, Silica, processes 7789-75-5, Calcium fluoride (CaF2), processes 12064-62-9, Gadolinium oxide (Gd2O3) 13463-67-7, Titanium oxide (TiO2), processes **65589-84-6**, Lithium oxide (Li2O3) 113482-02-3, Yttrium zirconium oxide (Y0.06Zr0.97O2.03)
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(in glass-ceramics; aluminate glass ceramic hardness abrasive steel substrate)

IT 12597-68-1, Stainless Steel, uses
RL: NUU (Other use, unclassified); USES (Uses)

(substrates: aluminate glass ceramic hardness abrasive steel substrate)

L8 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:726056 CAPLUS
DOCUMENT NUMBER: 136:9674
TITLE: Equation for estimating the thermal diffusivity, specific heat and thermal conductivity of oxide glasses
AUTHOR(S): Inaba, Seiji; Oda, Shuhei; Morinaga, Kenji
CORPORATE SOURCE: Department of Applied Science for Electronics and Materials, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Klasuga, 816-8580, Japan
SOURCE: Nippon Kinzoku Gakkaishi (2001), 65(8), 680-687
CODEN: NIKGAV; ISSN: 0021-4876
PUBLISHER: Nippon Kinzoku Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB The thermal diffusivity and sp. heat have been measured at room temperature by laser flash method and AC calorimetry, resp. Thermal conductivity has been determined by the product of d., thermal diffusivity, and sp. heat. The Debye temperature data have been collected from the measurements of ultrasonic method. For the direct calcn. of these properties from glass composition, empirical equations that consist of compositional parameters V1 and G1 were obtained, where V1 is the packing d. parameter and G1 is the dissociation energy of a single component oxide, resp. Exptl. results indicate that the calculated values using our proposed equations are in a good agreement with the measured values in many glasses studied in this work.
IT Borate glasses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminoborate; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)
IT Phosphate glasses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminophosphate; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)
IT Heat capacity
Thermal conductivity
Thermal properties
(empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)
IT Aluminosilicate glasses
Borate glasses
Glass, properties
Phosphate glasses

Silicate glasses
Tellurite glasses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT Glass, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(germanate; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT 1303-86-2, Boron sesquioxide, properties 1308-87-8, Dysprosium sesquioxide 1308-96-9, Europium sesquioxide 1312-81-8, Lanthana 1313-97-9, Neodymium sesquioxide 1314-36-9, Yttria, properties 1314-37-0, Ytterbium sesquioxide 12036-32-7, Praseodymium sesquioxide 12036-40-7, Tantalum sesquioxide 12036-44-1, Thulium sesquioxide 12055-62-8, Holmium sesquioxide 12060-58-1, Samarium sesquioxide 12061-16-4, Erbium sesquioxide 12064-62-9, Gadolinium sesquioxide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminosilicate glass; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT 1304-76-3, Bismuth sesquioxide, properties 1317-36-8, Lead monoxide, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(borate glass; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT 1303-28-2, Arsenic pentoxide 1304-56-9, Beryllium monoxide, properties 1306-19-0, Cadmium monoxide, properties 1306-38-3, Ceria, properties 1307-96-6, Cobalt monoxide, properties 1308-38-9, Chromia, properties 1310-53-8, Germanium dioxide, properties 1312-43-2, Indium sesquioxide 1313-13-9, **Manganese** dioxide, properties 1314-20-1, Thoria, properties 1314-23-4, Zirconium dioxide, properties 1314-34-7, Vanadium sesquioxide 1314-56-3, Phosphorus pentoxide, properties 1317-38-0, Copper monoxide, properties 1317-39-1, Copper oxide cu2o, properties 7446-07-3, Tellurium dioxide 12024-21-4, Gallium sesquioxide 12060-08-1, Scandium sesquioxide 18088-11-4, Rubidium oxide rb2o 18282-10-5, Tin dioxide 20281-00-9, Cesium oxide cs2o 20667-12-3, Silver oxide ag2o 21651-19-4, Tin monoxide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT 1304-28-5, Baria, properties 1305-78-8, Calcia, properties 1309-48-4,

Magnesium monoxide, properties 1313-59-3, Sodium oxide Na2O, properties 1314-11-0, Strontium oxide sro, properties 1344-28-1, Alumina, properties 7631-86-9, Silica, properties 12136-45-7, Potassium oxide k2o, properties **65589-84-6**, Lithium oxide Li2O3
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(oxide glass; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

IT 1309-37-1, Iron sesquioxide, properties 1309-64-4, Antimony sesquioxide, properties 1313-27-5, Molybdenum trioxide, properties 1314-13-2, Zinc monoxide, properties 1314-35-8, Tungsten trioxide, properties 12059-63-1, Niobium sesquioxide 13463-67-7, Titania, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(tellurite glass; empirical equation for estimation of thermal diffusivity, sp. heat, and thermal conductivity of aluminosilicate, borate, phosphate, tellurite, and germanate oxide glasses)

L8 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:636306 CAPLUS
DOCUMENT NUMBER: 135:203318
TITLE: Method for single crystal growth of perovskite oxides
INVENTOR(S): Lee, Ho-Yong; Kim, Jae-Suk; Lee, Jong-Bong; Hur, Tae-Moo; Kim, Doe-Yeon; Hwang, Nong-Moon
PATENT ASSIGNEE(S): Ceracomp Co., Ltd., S. Korea
SOURCE: PCT Int. Appl., 50 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| WO 2001063021 | A1 | 20010830 | WO 2001-KR267 | | 20010222 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI | | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | | |
| AU 2001036169 | A5 | 20010903 | AU 2001-36169 | | 20010222 |
| JP 2003523919 | T2 | 20030812 | JP 2001-561824 | | 20010222 |
| US 2002179000 | A1 | 20021205 | US 2001-857774 | | 20010611 |
| PRIORITY APPLN. INFO.: | | | KR 2000-8916 | A | 20000223 |
| | | | KR 2001-8685 | A | 20010221 |
| | | | WO 2001-KR267 | W | 20010222 |

AB The invention relates to a method for growing single crystals of perovskite oxides. The method is characterized by comprising the steps of (a) contacting a perovskite seed single with a Perovskite polycrystal and (b) heating the contacted crystals to grow the same structure as the single crystal into the polycrystal, the heating is controlled under conditions which abnormal grains growth is induced in the contacted portion while repressed in the inside of the polycrystal. The method for growing single crystals of perovskite oxides according to this invention has an advantage to provide an effective low cost in manufacturing process for single crystals by using usual heat-treatment process without special equipments. The method for growing single crystals of perovskite oxides according to this invention can be also applicable to other material systems showing abnormal grain growth behavior.

IT Grain growth
(abnormal; method for single crystal growth of perovskite oxides including step of heating combination of seed single crystal and polycrystal under condition of promoting abnormal grain growth)

IT Perovskite-type crystals
(method for single crystal growth of perovskite oxides)

IT Crystal growth
(method for single crystal growth of perovskite oxides by changing component ratio)

IT 12047-27-7, Barium titanium oxide (BaTiO3), processes 12060-00-3D, Lead titanium oxide (PbTiO3), solid solution with lead magnesium niobium oxide 12626-81-2, PZT
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(method for single crystal growth of perovskite oxides)

IT 1304-28-5, Barium oxide (BaO), processes 1304-76-3, Bismuth oxide (Bi2O3), processes 1305-78-8, Calcium oxide (CaO), processes 1306-19-0, Cadmium oxide (CdO), processes 1306-38-3, Cerium oxide (CeO2), processes 1307-96-6, Cobaltous oxide, processes 1308-38-9, Chromium oxide (Cr2O3), processes 1309-37-1, Iron oxide (Fe2O3), processes 1309-48-4, Magnesium oxide (MgO), processes 1312-81-8, Lanthanum oxide (La2O3) 1313-13-9, **Manganese** oxide, processes 1313-59-3, Sodium oxide, processes 1313-96-8, Niobium oxide (Nb2O5) 1313-97-9, Neodymium oxide (nd2o3) 1313-99-1, Nickel oxide (NiO), processes 1314-11-0, Strontium oxide (SrO), processes 1314-13-2, Zinc oxide (ZnO), processes 1314-23-4, Zirconium oxide (ZrO2), processes 1314-36-9, Yttrium oxide (Y2O3), processes 1314-61-0, Tantalum oxide (Ta2O5) 1317-36-8, Lead oxide (PbO), processes 1344-57-6, Uranium oxide (UO2), processes 12055-23-1, Hafnium oxide (HfO2) 12060-08-1, Scandium oxide (Sc2O3) 12136-45-7, Potassium oxide (K2O), processes 12274-26-9, Samarium oxide (SmO2) 13463-67-7, Titanium oxide (TiO2), processes 18282-10-5, Tin oxide (SnO2)
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(method for single crystal growth of perovskite oxides by adjoining seed single crystal to perovskite polycrystal having additives of)

IT 12057-57-7D, Lead magnesium niobium oxide (PbMg0.33Nb0.67O3), solid solution with lead titanium oxide

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(method for single crystal growth of perovskite oxides by changing component ratio)

IT 1303-86-2, Boron oxide (B2O3), processes 1310-53-8, Germanium oxide (GeO2), processes 1314-56-3, Phosphorus oxide (P2O5), processes 1314-62-1, Vanadium oxide (V2O5), processes 1317-38-0, Cupric oxide, processes 1344-28-1, Aluminum oxide (Al2O3), processes 7631-86-9, Silicon oxide (SiO2), processes **65589-84-6**, Lithium oxide (Li2O3)
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(method for single crystal growth of perovskite oxides including step of heating combination of seed single crystal and polycrystal under condition of promoting abnormal grain growth by adding)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:64217 CAPLUS
DOCUMENT NUMBER: 134:123927
TITLE: Method for single crystal growth of barium titanate and barium titanate solid solution
INVENTOR(S): Lee, Ho-Yong; Kim, Jae-Suk; Lee, Jong-Bong; Hur, Tae-Moo; Kim, Doe-Yeon; Hwang, Nong-Moon; Lee, Byoung-Ki; Chung, Sung Yoon; Kang, Suk-Joong L.
PATENT ASSIGNEE(S): Ceracomp Co., Ltd., S. Korea
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2001006042 | A1 | 20010125 | WO 2000-KR656 | 20000621 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| KR 2001003380 | A | 20010115 | KR 1999-23660 | 19990623 |
| AU 2000055747 | A5 | 20010205 | AU 2000-55747 | 20000621 |
| JP 2003505316 | T2 | 20030212 | JP 2001-511247 | 20000621 |
| JP 3507821 | B2 | 20040315 | | |
| US 6482259 | B1 | 20021119 | US 2001-646610 | 20010220 |
| US 2003015130 | A1 | 20030123 | US 2002-163526 | 20020607 |

US 6758898 B2 20040706

PRIORITY APPLN. INFO.:

| | | |
|---|---|---|
| KR 1999-23660 | A | 19990623 |
| KR 2000-8916 | A | 20000223 |
| KR 2000-8917 | A | 20000223 |
| KR 2000-20620 | A | 20000419 |
| WO 2000-KR656 | W | 20000621 |
| US 2001-646610 | A1 | 20010220 |

AB A method is given for growing single crystals of BaTiO3 and Ba titanate solid solns. [(BaxM1-x)(TiyN1-y)O3]. A method for growing single crystals of BaTiO3 and Ba titanate solid solns. showing the primary and secondary abnormal grain growths with increasing temperature above the liquid formation temperature is characterized by comprising the step for a few secondary abnormal grains to continue to grow at a temperature slightly below the critical temperature where the secondary abnormal grain growth starts to occur. The method has the advantage to provide an effective low cost in manufacturing process for single crystals by using usual heat-treatment process without special equipment. The method can be also applicable to other material systems showing abnormal grain growth behavior.

IT Heat treatment
(crystal growth of barium titanate and barium titanate solid solns. showing abnormal grain growth behavior by)

IT Grain growth
(crystal growth of barium titanate and barium titanate solid solns. showing abnormal grain growth behavior by heat treatment)

IT Crystal growth
(of barium titanate and barium titanate solid solns. showing abnormal grain growth behavior by heat treatment)

IT 1303-86-2, Boron oxide, processes 1304-28-5, Barium oxide, processes 1304-76-3, Bismuth oxide bi2o3, processes 1305-78-8, Calcium oxide, processes 1306-19-0, Cadmium oxide, processes 1306-38-3, Cerium dioxide, processes 1307-96-6, Cobalt oxide coo, processes 1308-38-9, Chromium oxide cr2o3, processes 1309-37-1, Iron oxide fe2o3, processes 1309-48-4, Magnesium oxide, processes 1310-53-8, Germanium dioxide, processes 1312-81-8, Lanthanum sesquioxide 1313-13-9, **Manganese** dioxide, processes 1313-59-3, Sodium oxide, processes 1313-96-8, Niobium pentoxide 1313-97-9, Neodymium sesquioxide 1313-99-1, Nickel oxide nio, processes 1314-11-0, Strontium oxide, processes 1314-13-2, Zinc oxide, processes 1314-23-4, Zirconium dioxide, processes 1314-36-9, Yttrium sesquioxide, processes 1314-56-3, Phosphorus pentoxide, processes 1314-61-0, Tantalum pentoxide 1314-62-1, Vanadium pentoxide, processes 1317-36-8, Lead oxide pbo, processes 1317-38-0, Copper oxide cuo, processes 1344-28-1, Alumina, processes 1344-43-0, **Manganese** oxide mno, processes 1344-57-6, Uranium dioxide, processes 7631-86-9, Silica, processes 12055-23-1, Hafnium dioxide 12060-08-1, Scandium sesquioxide 12136-45-7, Potassium oxide, processes 12274-26-9, Samarium dioxide 13463-67-7, Titanium dioxide, processes 18282-10-5, Tin dioxide **65589-84-6**, Lithium oxide li2o3 148070-59-1, Barium titanium oxide silicate (Ba0.8Ti0.8O2(SiO4)0.2)

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crystal growth of barium titanate and barium titanate solid solns. showing abnormal grain growth behavior by heat treatment using additive of)

IT 12049-50-2, Calcium titanate 12060-59-2, Strontium titanate
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crystal growth of barium titanate and barium titanate solid solns. showing abnormal grain growth behavior by heat treatment using seed crystal of)

IT 12047-27-7, Barium titanium oxide batio3, processes 12047-27-7D, Barium titanium oxide batio3, solid solns.
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(crystal growth showing abnormal grain growth behavior by heat treatment)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:666855 CAPLUS
DOCUMENT NUMBER: 127:354580
TITLE: Cu-Mg-Zn-based magnetic materials with good temperature characteristics
INVENTOR(S): Kang, Sang Won; Park, Jong Hak
PATENT ASSIGNEE(S): Samsung Corning Co.,Ltd., S. Korea
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 09263442 | A2 | 19971007 | JP 1996-97661 | 19960327 |
| PRIORITY APPLN. INFO.: | | | JP 1996-97661 | 19960327 |

AB The materials comprise ferrites consisting of CuO 2.5-9, MgO 18-24, Fe2O3 48-50 mol%, and balance ZnO; whose Fe2O3 component is substituted with 0.1-0.9 mol% Cr2O3 and to which 0.01-0.1 weight% Bi2O3 and 0.1-0.6 weight% Li2O3 are added. The materials also show high initial permeability and low magnetic loss, and are especially useful for rotary transformer cores.

IT Ferrites
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics)

IT Magnetic cores
(Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics for)

IT Transformers
(cores; Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics for)
IT 198141-40-1P
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics)
IT 1309-37-1, Iron oxide (Fe2O3), properties 1309-48-4, Magnesia, properties 1314-13-2, Zinc oxide, properties 1317-38-0, Cupric oxide, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics)
IT 1304-76-3, Bismuth oxide, properties 1305-78-8, Calcia, properties 1344-43-0, **Manganese** oxide (MnO), properties 7631-86-9, Silica, properties **65589-84-6**, Lithium oxide (Li2O3)
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ferrites containing; Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics)
IT 1308-38-9, Chromium oxide, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ferrites substituted with; Cu-Mg-Zn-based ferrite magnetic materials with good temperature characteristics)

L8 ANSWER 6 OF 7 CAPLUS 
ACCESSION NUMBER: 1991:438707 CAPLUS
DOCUMENT NUMBER: 115:38707
TITLE: Electrochromic device containing nickel oxide counter electrode
INVENTOR(S): Nagai, Junichi; Seike, Tetsuya
PATENT ASSIGNEE(S): Asahi Glass Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 02226122 | A2 | 19900907 | JP 1989-45101 | 19890228 |
| JP 2730139 | B2 | 19980325 | | |

PRIORITY APPLN. INFO.: JP 1989-45101 19890228

AB In the title device comprising an electrode and a counter electrode formed on substrates, an electrochem. coloring substance, and an electrolyte, the counter electrode contains NiOx(x = 0.5-2) and the electrolyte is made by

dissolving an alkali metal salt M+X- (M = Li, Na, K; X = ClO4, BF4, CF3SO3, AsF6, PF6) in propylene carbonate, δ-butyrolactone, sulfolane, or 3-methyl-sulfolane.

IT Optical imaging devices
(electrochromic, containing nickel oxide counter electrodes)

IT 111706-41-3, Nickel oxide (NiO1.5) 134831-06-4, Nickel oxide (NiO0.8)
RL: USES (Uses)
(electrochromic devices containing counter electrodes of)

IT 96-48-0 108-32-7, Propylene carbonate 126-33-0, Sulfolane 872-93-5, 3-Methylsulfolane 2926-30-9 3811-04-9, Potassium chlorate 13453-71-9, Lithium chlorate 14283-07-9, Lithium tetrafluoroborate 17029-22-0, Potassium hexafluoroarsenate 21324-40-3, Lithium hexafluorophosphate
RL: USES (Uses)
(electrochromic devices with electrolytes containing)

IT 1306-38-3, Cerium dioxide, uses and miscellaneous 1307-96-6, Cobalt monoxide, uses and miscellaneous 1312-43-2, Indium trioxide 1312-81-8, Lanthanum trioxide 1313-13-9, **Manganese** dioxide, uses and miscellaneous 1333-82-0, Chromium trioxide 1345-25-1, Ferrous oxide, uses and miscellaneous 12020-60-9, Europium monoxide 12030-49-8, Iridium dioxide 18282-10-5, Tin dioxide **65589-84-6**, Lithium oxide (Li2O3)
RL: USES (Uses)
(electrochromic devices with nickel oxide counter electrodes doped by)

L8 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:524960 CAPLUS
DOCUMENT NUMBER: 95:124960
TITLE: Grain boundary insulated semiconductor ceramic
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 56083919 | A2 | 19810708 | JP 1979-161778 | 19791212 |
| JP 61050371 | B4 | 19861104 | | |

PRIORITY APPLN. INFO.: JP 1979-161778 19791212

AB A grain-boundary-insulated semiconductor ceramic is obtained by thermally diffusing an agent from Bi2O3 and Cu2O into grain boundaries of Sr titanate niobate. The diffusion agent may contain MnO2, B2O3, or Li2O3.

IT Semiconductor materials
(ceramic, from strontium niobate titanate containing oxides, grain-boundary-insulated)

IT Transition metal oxides
RL: USES (Uses)

(semiconductor ceramic from strontium niobate titanate containing)

IT 1303-86-2, uses and miscellaneous 1304-76-3, uses and miscellaneous
1313-13-9, uses and miscellaneous 1317-39-1, uses and miscellaneous
**65589-84-6**
RL: USES (Uses)
(semiconductor ceramic from strontium niobate titanate containing)

IT 12060-59-2D, solid solution with strontium niobate 12673-59-5D, solid solution
with strontium titanate
RL: USES (Uses)
(semiconductor ceramic from, grain-boundary-insulated)

554-13-2, Lithium carbonate 1309-48-4, Magnesium oxide, processes
1313-13-9, Manganese dioxide, processes 7790-69-4, Lithium nitrate
10377-60-3, Magnesium nitrate 10377-66-9, Manganese nitrate
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

L5 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:754409 CAPLUS
DOCUMENT NUMBER: 133:298835
TITLE: **Preparation** of lithium manganese oxides by a heat treatment for battery use
INVENTOR(S): Horne, Craig R.; Kumar, Sujeet; Reitz, Hariklia Dris; Gardner, James T.; Bi, Xiangxin
PATENT ASSIGNEE(S): NanoGram Corporation, USA
SOURCE: U.S., 42 pp., Cont.-in-part of U.S. Ser. No. 188,768. CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 23
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| US 6136287 | A | 20001024 | US 1998-203414 | | 19981202 |
| US 6607706 | B1 | 20030819 | US 1998-188768 | | 19981109 |
| WO 2000027754 | A1 | 20000518 | WO 1999-US26343 | | 19991108 |
| W: CA, CN, JP, KR | | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | |
| EP 1165442 | A1 | 20020102 | EP 1999-957527 | | 19991108 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
| JP 2002529352 | T2 | 20020910 | JP 2000-580940 | | 19991108 |
| PRIORITY APPLN. INFO.: | | | US 1998-188768 | A2 | 19981109 |
| | | | US 1998-188770 | A | 19981109 |
| | | | US 1998-203414 | A | 19981202 |
| | | | US 1999-334203 | A | 19990616 |
| | | | WO 1999-US26343 | W | 19991108 |

AB Lithium manganese oxide particles have been produced with an average diameter less than about 250 nm. The particles have a high degree of uniformity. The particles are formed by the heat treatment of nanoparticles of manganese oxide. The lithium manganese oxide particles are useful as active materials in the pos. electrodes of lithium based batteries. Improved batteries result from the use of the uniform nanoscale lithium manganese oxide particles.

IT Secondary batteries
(lithium; preparation of lithium manganese oxides by heat treatment for battery use)

IT Thermal decomposition
(photo-; preparation of lithium manganese oxides by heat treatment for

battery use)
IT Battery cathodes
Heat treatment
(preparation of lithium manganese oxides by heat treatment for battery use)
IT 67-63-0, Isopropyl alcohol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(IR absorber; preparation of lithium manganese oxides by heat treatment for battery use)
IT 74-85-1, Ethylene, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(lase absorbing gas; preparation of lithium manganese oxides by heat treatment for battery use)
IT 1344-43-0, Manganese oxide mno, reactions 7447-41-8, Lithium chloride, reactions 7773-01-5, Manganese chloride mncl2 7790-69-4, Lithium nitrate 10170-69-1, Manganese carbonyl Mn2(CO)10 10377-66-9, Manganese nitrate
RL: RCT (Reactant); RACT (Reactant or reagent)
(precursor; preparation of lithium manganese oxides by heat treatment for battery use)
IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 1317-34-6, Manganese oxide mn2o3 1317-35-7, Manganese oxide mn3o4 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(preparation of lithium manganese oxides by heat treatment for battery use)
IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(preparation of lithium manganese oxides by heat treatment for battery use)
IT **12057-17-9P**, Lithium manganese oxide limn2o4 39457-42-6P, Lithium manganese oxide 127575-11-5P, Lithium manganese oxide Li2Mn4O9 301319-26-6P, Lithium manganese oxide (LiMn2O3.8)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of lithium manganese oxides by heat treatment for battery use)
IT 1313-12-8P, Manganosite
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of lithium manganese oxides by heat treatment for battery use)
IT 7782-44-7, **Oxygen**, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(preparation of lithium manganese oxides by heat treatment for battery use)
IT 7440-37-1, **Argon**, uses 7647-01-0, Hydrochloric acid, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of lithium manganese oxides by heat treatment for battery use)
REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:274822 CAPLUS

DOCUMENT NUMBER: 124:321354
TITLE: **Preparation** of cathode materials for lithium batteries by melt impregnation method. IV. **Preparation** of stoichiometric spinel LiMn2O4 and nonstoichiometric spinel LixMn2O4 and their electrochemical behavior
AUTHOR(S): Yoshio, Masaki; Noguchi, Hideyuki; Xia, Yongyao; Ikeda, Kazutaka
CORPORATE SOURCE: Dep. Appl. Chem., Fac. Sci. Eng., Saga Univ., Saga, 840, Japan
SOURCE: Denki Kagaku oyobi Kogyo Butsuri Kagaku (1996), 64(5), 388-393
CODEN: DKOKAZ; ISSN: 0366-9297
PUBLISHER: Denki Kagaku Kyokai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB The spinel LixMn2Oz (z>4) has been prepared from MnO2 and LiNO3 (or LiOH) under N2 or **air** by melt impregnation method. **Nitrogen** gas accelerates the release of excess **oxygen** from **oxygen** excess LiMn2Oz, causing the formation of LiMn2O4. Stoichiometric spinel LiMn2O4 with initial capacity of 130 mAh·g-1 at c.d. 0.4 mA·cm-2 is prepared from IC 12 (International Common MnO2 No.12)-LiOH by two step heating, 470°, 12 h in **air** and 700°, 24 h in N2. It would be gradually transformed during the cycling to new compds. with the capacity of ca. 110-120 mAh·g-1, which is higher than that of **oxygen** rich spinel Li1.04Mn2O4.14 with excellent cyclability. The Li1.04Mn2O4.14 shows one quasi-S type discharge curve. Its electrochem. reaction consisting of two homogeneous reactions was nearly same potentials with those of LiMn2O4 with a homogeneous and a heterogeneous reactions. Excellent cyclability of it would be due to the continuous and small cell volume change during the cycling.

IT Cathodes
(battery, preparation of stoichiometric spinel LiMn2O4 and nonstoichiometric spinel LixMn2O4 and their electrochem. behavior)

IT **12057-17-9P**, Lithium manganese oxide LiMn2O4 39457-42-6P, Lithium manganese oxide 171088-91-8DP, Lithium manganese oxide Li1.04Mn2O4, **oxygen**-excess 176500-67-7DP, Lithium manganese oxide (Li0.24Mn2O4), **oxygen**-excess 176500-68-8DP, Lithium manganese oxide (Li0.34Mn2O4), **oxygen**-excess 176500-69-9DP, Lithium manganese oxide (Li0.44Mn2O4), **oxygen**-excess 176500-70-2DP, Lithium manganese oxide (Li0.49Mn2O4), **oxygen** -excess 176500-71-3DP, Lithium manganese oxide (Li0.59Mn2O4), **oxygen**-excess 177323-75-0DP, Lithium manganese oxide (Li0.79Mn2O4), **oxygen**-excess
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of stoichiometric spinel LiMn2O4 and nonstoichiometric spinel LixMn2O4 and their electrochem. behavior)

L5 ANSWER 5 OF 5 CAPLUS 

ACCESSION NUMBER: 1991:646496 CAPLUS
DOCUMENT NUMBER: 115:246496
TITLE: The use of acetates as precursors for the low-temperature synthesis of lithium manganese oxide (LiMn2O4) and lithium cobalt oxide (LiCoO2) intercalation compounds
AUTHOR(S): Barboux, P.; Tarascon, J. M.; Shokoohi, F. K.
CORPORATE SOURCE: Bellcore, Red Bank, NJ, 07701, USA
SOURCE: Journal of Solid State Chemistry (1991), 94(1), 185-96
CODEN: JSSCBI; ISSN: 0022-4596
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The spinel LiMn2O4 and layered LiMO2 (M = Co, Ni) compds., which are of potential interest for Li intercalation applications, have been synthesized at low temps. from aqueous solns. of hydroxides, nitrate, and acetate salts. These phases can be prepared in bulk or thick-film form with their crystallization temperature strongly dependent on O pressure, annealing time, and Li/transition metal ratio. For instance, we succeeded in preparing the spinel LiMn2O4 at temps. as low as 300°, whereas a temperature of 500° was needed to obtain LiCoO2. Rechargeable Li batteries using the LiMn2O4 powders, synthesized at low temps., show good capacity and good intercalation cycling behavior. Larger amts. of Li cannot be directly introduced into the spinel phase by heat treatment under less oxidizing atmospheres obtained by use of mixts. of **argon** and **oxygen**.

IT Cathodes
(battery, lithium manganese oxide)

IT Inclusion reaction
(intercalation, of lithium into lithium manganese oxide or sodium into manganese sodium oxide)

IT 1344-43-0P, Manganese monoxide, **preparation**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, by thermal decomposition of lithium manganese oxide)

IT 1317-34-6P, Manganese oxide (Mn2O3)
RL: SPN (Synthetic preparation); FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in sol-gel preparation of lithium manganese oxide spinel)

IT 7439-93-2, Lithium, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(intercalation of, into lithium magnesium oxide)

IT 7440-23-5, Sodium, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(intercalation of, into manganese sodium oxide)

IT **12057-17-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and thermal decomposition and reversible intercalation of lithium into)

IT 71-48-7, Cobalt(2+) acetate 373-02-4, Nickel(2+) acetate 638-38-0, Manganese(2+) acetate 10377-66-9, Manganous nitrate
RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with lithium and ammonium hydroxides)

IT 1310-65-2, Lithium hydroxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with transition metal salts and ammonium hydroxide)

IT 137184-05-5, Manganese sodium oxide (MnNa0.25O2)
RL: RCT (Reactant); RACT (Reactant or reagent)
(sol-gel preparation and intercalation of sodium into)

IT 12190-79-3P, Cobalt lithium oxide (CoLiO2)
RL: SPN (Synthetic preparation); PREP (Preparation)
(sol-gel preparation of)

IT 137184-04-4, Manganese sodium oxide (MnNa0.44O2)
RL: PROC (Process)
(thermal formation of)

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 12057-17-9 REGISTRY
CN Lithium manganese oxide (LiMn204) (6CI, 7CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Manganate (Mn2041-), lithium
OTHER NAMES:
CN Lithium manganate (LiMn204)
CN Lithium manganese oxide (Li0.5MnO2)
CN Lithium manganite (LiMn204)
CN LM 4
CN LM 4 (metal oxide)
DR 89412-12-4
MF Li . Mn . O
AF **Li Mn2 O4**
CI TIS
LC STN Files: CA, CAOLD, CAPLUS, CHEMCATS, CHEMLIST, CSCHEM, IFICDB, IFIUDB, TOXCENTER, USPAT2, USPATFULL
Other Sources: TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Conference; Dissertation; Journal; Patent; Preprint
RL.P Roles from patents: ANST (Analytical study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: PREP (Preparation); PROC (Process); PRP (Properties); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 4 | 17778-80-2 |
| Mn | 2 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

2601 REFERENCES IN FILE CA (1907 TO DATE)
78 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
2606 REFERENCES IN FILE CAPLUS (1907 TO DATE)
6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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=> d hist

     (FILE 'HOME' ENTERED AT 16:09:18 ON 08 AUG 2004)

     FILE 'REGISTRY' ENTERED AT 16:09:28 ON 08 AUG 2004
                E LIMN204/MF
L1            1 S E3

     FILE 'CAPLUS' ENTERED AT 16:10:15 ON 08 AUG 2004
L2          170 S L1 AND PREPARATION
L3            0 S L2 AND OXYGEN AND INERT
L4           27 S L2 AND (AIR OR OXYGEN)
L5            5 S L4 AND (ARGON OR NITROGEN)

=> d ibib ab it 1-
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y
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L5 ANSWER 1 OF 5 CAPLUS 

ACCESSION NUMBER: 2001:830604 CAPLUS
DOCUMENT NUMBER: 135:350822
TITLE: Procedure for the crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode
INVENTOR(S): Lee, Jai Young; Kang, Youn Seon; Lee, Ho; Park, Sung Chul; Kang, Yong Mook
PATENT ASSIGNEE(S): Korea Advanced Institute of Science & Technology, Daejeon, S. Korea
SOURCE: Ger. Offen., 10 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| DE 10053733 | A1 | 20011115 | DE 2000-10053733 | | 20001030 |
| DE 10053733 | B4 | 20040805 | | | |
| US 6376027 | B1 | 20020423 | US 2000-688987 | | 20001017 |
| PRIORITY APPLN. INFO.: | | | KR 2000-23286 | A | 20000501 |

AB A procedure is presented for the crystallization of a thin film of a Li transition metal oxide for an electrode of a secondary Li thin film battery. The thin film of Li transition metal oxide is deposited by O or Ar microwave or high-frequency plasma and has a high degree of crystallinity and excellent electrochem. characteristics. The plasma treatment solves, not only the problem of high deposition temps. approaching 750 C and a procedure lasting from several hours to 10 h by the conventional crystallization procedure for thin films of Li transition metal oxides, but also the problem using a glass or a metal substrate with lower m.p.

IT Secondary batteries
(lithium; procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT Transition metal oxides
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(lithium; procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT Vapor deposition process
(plasma; procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT Battery electrodes
Crystallization
Film electrodes
(procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT 7439-90-9, Krypton, processes 7440-01-9, Neon, processes 7440-37-1, **Argon**, processes 7440-59-7, Helium, processes 7440-63-3, Xenon, processes 7782-44-7, **Oxygen**, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT 1314-62-1P, Vanadium oxide (V2O5), **preparation** 10377-52-3P, Lithium phosphate (Li3PO4) 12024-01-0P, Gallium lithium oxide (GaLiO2) 12031-65-1P, Lithium nickel oxide (LiNiO2) 12037-42-2P, Vanadium oxide (V6O13) 12039-13-3P, Titanium sulfide (TiS2) **12057-17-9P**, Lithium manganese oxide (LiMn2O4) 12057-19-1P, Lithium titanium oxide (LiTiO2) 12190-79-3P, Cobalt lithium oxide (CoLiO2) 12615-39-3P, Aluminum 50, lithium 50 (atomic) 18282-10-5P, Tin oxide (SnO2)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
IT 7440-06-4, Platinum, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; procedure for crystallization of a thin film of a lithium transition metal oxide for a secondary battery electrode)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:745667 CAPLUS
DOCUMENT NUMBER: 135:291379
TITLE: Cathode active materials, their manufacture, and lithium ion secondary batteries using them
INVENTOR(S): Nozaki, Ayumi; Maekawa, Takeyuki; Miyashita, Shoji
PATENT ASSIGNEE(S): Mitsubishi Electric Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2001283847 | A2 | 20011012 | JP 2000-90928 | 20000329 |

PRIORITY APPLN. INFO.: JP 2000-90928 20000329

AB Cathode active materials are manufactured by mixing Li inorg. salts, Mn inorg. salts, and Mg inorg. salts, heating the mixts. at 600-900° under oxidizing atmospheric, and heating them at 600-900° under reducing atmospheric Alternatively, cathode active materials are manufactured by forming solns. containing Li ion, Mn ion, and Mg ion at a ratio of x:1-y:y (x = 0.8-1.15, y = 0.01-0.1) and agents capable of coordinating with Li, Mn Mg, removing solvents from the solns., and heating the resulting precursors at 600-900° under reducing atmospheric or inert atmospheric Cathode active materials containing spinel-type oxides $Li_x(Mn_{1-y}Mg_y)_2O_z$ (x = 0.8-1.15, y = 0.01-0.1, z = 4-4.2) and secondary Li batteries using the materials are also claimed. The batteries show high initial irreversible capacity and good durability at high temperature

IT **Air**
(heating atmospheric; manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT Secondary batteries
(lithium; manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT Battery cathodes
Firing (heat treating)
(manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT Carboxylic acids, **preparation**
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(salts, cathode precursors; manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT 1333-74-0, Hydrogen, uses 7440-37-1, **Argon**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(heating atmospheric; manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT **12057-17-9**, Lithium manganese oxide ($LiMn_2O_4$)
RL: DEV (Device component use); USES (Uses)
(manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT 175786-46-6P, Lithium magnesium manganese oxide
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(manufacture of secondary Li battery cathodes containing Li Mn Mg oxide)

IT 77-92-9, Citric acid, processes 546-93-0, Magnesium carbonate